CONTENTS OF VOLUME 14

NUMBER 1

B. STRÖMBERG and S. A. BANWART: Experimental study of acidity-consuming processes in mining waste rock: some influences of mineralogy and particle size 1

S. HE, A. T. KAN and M. B. TOMSON: Inhibition of calcium carbonate precipitation in NaCl brines from 25 to 90°C 17

D. BANKS, G. HALL, C. REIMANN and U. SIEWERS: Distribution of rare earth elements in crystalline bedrock groundwaters: Oslo and Bergen regions, Norway 27

R. G. GERRITSE: Sulphur, organic carbon and iron relationships in estuarine and freshwater sediments: effects of sedimentation rate 41

D. B. LEVY, J. A. SCHRAMKE, K. J. ESPOSITO, T. A. ERICKSON and J. C. MOORE: The shallow ground water chemistry of arsenic, fluorine, and major elements: Eastern Owens Lake, California 53

C. BEAUCAIRE, N. GASSAMA, N. TRESONNE and D. LOUVAT: Saline groundwaters in the hercynian granites (Chardon Mine, France): geochemical evidence for the salinity origin 67

J. MÄKINEN and N. GUSTAVSSON: Estimating proportions in geochemical mixing equations by Chebyshev's method 85

G. BERGELSON, R. NATIV and A. BEIN: Salinization and dilution history of ground water discharging into the Sea of Galilee, the Dead Sea Transform, Israel 91

K. C. HACKLEY, C. L. LIU and D. TRAINOR: Isotopic identification of the source of methane in subsurface sediments of an area surrounded by waste disposal facilities 119

R. JIMÉNEZ-ESPINOSA and M. CHICA-OLMO: Application of geostatistics to identify gold-rich areas in the Finisterre-Fervenza region, NW Spain 133

NUMBER 2

J. A. MASTRINE, J.-C. J. BONZONGO and W. B. LYONS: Mercury concentrations in surface waters from fluvial systems draining historical precious metals mining areas in southeastern U.S.A. 147

J. A. MEIMA and R. N. J. COMANS: The leaching of trace elements from municipal solid waste incinerator bottom ash at different stages of weathering 159

G. KOPTSIK, S. TEVELDAL, D. AAMLID and K. VENN: Calculations of weathering rate and soil solution chemistry for forest soils in the Norwegian-Russian border area with the PROFILE model 173

S. M. ULLRICH, M. H. RAMSEY and E. HELIOS-RYBICKA: Total and exchangeable concentrations of heavy metals in soils near Bytom, an area of Pb/Zn mining and smelting in Upper Silesia, Poland 187

S. S. IYER, M. BABINSKI, M. M. MARINHO, J. S. F. BARBOSA, I. M. SATO and V. L. SALVADOR: Lead isotope evidence for recent uranium mobility in geological formations of Brazil: implications for radioactive waste disposal 197

K. HE, I. STOBER and K. BUCHER: Chemical evolution of thermal waters from limestone aquifers of the Southern Upper Rhine Valley 223

I. STOBER and K. BUCHER: Deep groundwater in the crystalline basement of the Black Forest region 237

S. E. CABANISS: Uncertainty propagation in geochemical calculations: non-linearity in solubility equilibria 255

P. HORN and D. MÜLLER-SOHNIUS: Comment on "Mobility of Bell Beaker people revealed by strontium isotope ratios of tooth and bone: a study of southern Bavarian skeletal remains" by Gisela Grupe, T. Douglas Price, Peter Schröter, Frank Söllner, Clark M. Johnson and Brian L. Beard..... 263

G. GRUPE, T. D. PRICE and F. SÖLLNER: Reply to the comment by Peter Horn and Dieter Müller-Sohnius on "Mobility of Bell Beaker people revealed by strontium isotope ratios of tooth and bone: a study of southern Bavarian skeletal remains" 271

NUMBER 3

J. HOLMES: Fate of incorporated metals during mackinawite oxidation in sea water 277

B. ANDREO and F. CARRASCO: Application of geochemistry and radioactivity in the hydrogeological investigation of carbonate aquifers (Sierras Blanca and Mijas, southern Spain) 283

F. ÖDMAN, T. RUTH and C. PONTÉR: Validation of a field filtration technique for characterization of suspended particulate matter from freshwater. Part I. Major elements 301

P. G. WIGHTMAN and J. B. FEIN: Experimental study of 2,4,6-trichlorophenol and pentachlorophenol solubilities in aqueous solutions: derivation of a speciation-based chlorophenol solubility model..... 319

T. ELLIOT, J. N. ANDREWS and W. M. EDMUNDS: Hydrochemical trends, palaeorecharge and groundwater ages in the fissured Chalk aquifer of the London and Berkshire Basins, UK 333

D. J. GREEMAN, A. W. ROSE, J. W. WASHINGTON, R. R. DOBOS and E. J. CIOLKOSZ: Geochemistry of radium in soils of the Eastern United States 365

M. E. HODSON and S. J. LANGAN: The influence of soil age on calculated mineral weathering rates... 387

Y. CAI, R. JAFFÉ and R. D. JONES: Interactions between dissolved organic carbon and mercury species in surface waters of the Florida Everglades 395

J. G. FARMER: Book Review: Arsenic: Exposure and Health Effects 409

NUMBER 4

R. ARAVENA, O. SUZUKI, H. PEÑA, A. POLLASTRI, H. FUENZALIDA and A. GRILLI: Isotopic composition and origin of the precipitation in Northern Chile 411

E. MOLINAROLI, M. PISTOLATO, G. RAMPAZZO and S. GUERZONI: Geochemistry of natural and anthropogenic fall-out (aerosol and precipitation) collected from the NW Mediterranean: two different multivariate statistical approaches 423

E. CURTI: Coprecipitation of radionuclides with calcite: estimation of partition coefficients based on a review of laboratory investigations and geochemical data 433

M. MUNOZ, A. J. BOYCE, P. COURJAULT-RADE, A. E. FALLICK and F. TOLLON: Continental basinal origin of ore fluids from southwestern Massif central fluorite veins (Albigeois, France): evidence from fluid inclusion and stable isotope analyses 447

B. L. RHOADS and R. A. CAHILL: Geomorphological assessment of sediment contamination in an urban stream system 459

D. CRAW, D. CHAPPELL, M. NELSON and M. WALROND: Consolidation and incipient oxidation of alkaline arsenopyrite-bearing mine tailings, Macraes Mine, New Zealand 485

G. DE LA LANZA-ESPINO and L. A. SOTO: Sedimentary geochemistry of hydrothermal vents in Guaymas Basin, Gulf of California, Mexico 499

C. S. KIRBY, H. M. THOMAS, G. SOUTHAM and R. DONALD: Relative contributions of abiotic and biological factors in Fe(II) oxidation in mine drainage 511

K. G. KNAUSS, M. J. DIBLEY, R. N. LEIF, D. A. MEW and R. D. AINES: Aqueous oxidation of trichloroethene (TCE): a kinetic analysis 531

R. HALLBERG: Book Review: Geomicrobiology: Interactions between Microbes and Minerals 543

RON FUGE: Book Review: Environmental Geochemical Atlas of the Central Barents Region 544

NUMBER 5

Q. JIN, S. XIONG and P. LU: Catalysis and hydrogenation: volcanic activity and hydrocarbon generation in rift basins, eastern China 547

B. VELDE and T. CHURCH: Rapid clay transformations in Delaware salt marshes 559

P. V. BRADY, H. W. PAPENGUTH and J. W. KELLY: Metal sorption to dolomite surfaces 569

C. A. CRAVOTTA III and M. K. TRAHAN: Limestone drains to increase pH and remove dissolved metals from acidic mine drainage 581

T. S. COLLETT and S. R. DALLIMORE: Hydrocarbon gases associated with permafrost in the Mackenzie Delta, Northwest Territories, Canada 607

Y. SONG, M. J. WILSON, H.-S. MOON, J. R. BACON and D. C. BAIN: Chemical and mineralogical forms of lead, zinc and cadmium in particle size fractions of some wastes, sediments and soils in Korea .. 621

E. C. BUCK and J. K. BATES: Microanalysis of colloids and suspended particles from nuclear waste glass alteration 635

M. E. TUCCILLO, I. M. COZZARELLI and J. S. HERMAN: Iron reduction in the sediments of a hydrocarbon-contaminated aquifer 655

L. SHEVENELL, K. A. CONNORS and C. D. HENRY: Controls on pit lake water quality at sixteen open-pit mines in Nevada 669

NUMBER 6

A. DANIELSSON, I. CATO, R. CARM and L. RAHM: Spatial clustering of metals in the sediments of the Skagerrak/Kattegat 689

J. P. GUSTAFSON, P. BHATTACHARYA and E. KARLTUN: Mineralogy of poorly crystalline aluminium phases in the B horizon of Podzols in southern Sweden 707

L. BENDELL-YOUNG: Contrasting the sorption of Zn by oxyhydroxides of Mn and Fe, and organic matter along a mineral-poor to mineral-rich fen gradient 719

F. SANCHEZ MARTOS, A. PULIDO BOSCH and J. M. CALAFORRA: Hydrogeochemical processes in an arid region of Europe (Almeria, SE Spain) 735

H. HOLMSTRÖM and B. ÖHLANDER: Oxygen penetration and subsequent reactions in flooded sulphidic mine tailings: a study at Stekenjokk, northern Sweden 747

M. LAND, J. INGRI and B. ÖHLANDER: Past and present weathering rates in northern Sweden 761

B. LAURIOL and I. CLARK: Fissure calcretes in the arctic: a paleohydrologic indicator 775

C. REIMANN, D. BANKS, I. BOGATYREV, P. DE CARITAT, G. KASHULINA and H. NISKAVAARA: Lake water geochemistry on the western Kola Peninsula, north-west Russia 787

M. KRALIK: A rapid procedure for environmental sampling and evaluation of polluted sediments 807

NUMBER 7

Geochemistry of the Äspö Hard Rock Laboratory, Sweden

M. GASCOYNE and P. WIKBERG: Preface 817

R. STANFORS, I. RHÉN, E.-L. TULLBORG and P. WIKBERG: Overview of geological and hydrogeological conditions of the Äspö hard rock laboratory site 819

M. LAAKSOHARJU, E.-L. TULLBORG, P. WIKBERG, B. WALLIN and J. SMELLIE: Hydrogeochemical conditions and evolution at the Äspö HRL, Sweden 835

M. LAAKSOHARJU, C. SKÅRMAN and E. SKÅRMAN: Multivariate mixing and mass balance (M3) calculations, a new tool for decoding hydrogeochemical information 861

S. A. BANWART, E. GUSTAFSSON and M. LAAKSOHARJU: Hydrological and reactive processes during rapid recharge to fracture zones 873

P. PITKÄNEN, J. LÖFMAN, L. KOSKINEN, H. LEINO-FORSMAN and M. SNELLMAN: Application of mass-balance and flow simulation calculations to interpretation of mixing at Äspö, Sweden 893

L. TROTIGNON, C. BEAUCAIRE, D. LOUVAT and J.-F. ARANYOSSY: Equilibrium geochemical modelling of Äspö groundwaters: a sensitivity study of thermodynamic equilibrium constants 907

D. LOUVAT, J. L. MICHELOT and J.-F. ARANYOSSY: Origin and residence time of salinity in the Äspö groundwater system 917

E.-L. TULLBORG and E. GUSTAFSSON: ^{14}C in bicarbonate and dissolved organics—a useful tracer? 927

Z. E. PETERMAN and B. WALLIN: Synopsis of strontium isotope variations in groundwater at Äspö, southern Sweden 939

B. WALLIN and Z. PETERMAN: Calcite fracture fillings as indicators of paleohydrology at Laxemar at the Äspö Hard Rock Laboratory, southern Sweden 953

NUMBER 8

Review

L. E. EARY: Geochemical and equilibrium trends in mine pit lakes 963

Regular Papers

R. W. PULS, C. J. PAUL and R. M. POWELL: The application of in situ permeable reactive (zero-valent iron) barrier technology for the remediation of chromate-contaminated groundwater: a field test ... 989

R. NATIV, G. GÜNAY, H. HÖTZL, B. REICHERT, D. K. SOLOMON and L. TEZCAN: Separation of groundwater-flow components in a karstified aquifer using environmental tracers 1001

K. A. HUDSON-EDWARDS, C. SCHELL and M. G. MACKLIN: Mineralogy and geochemistry of alluvium contaminated by metal mining in the Rio Tinto area, southwest Spain 1015

F. JUILLOT, PH. ILDEFONSE, G. MORIN, G. CALAS, A. M. DE KERSABIEC and M. BENEDETTI: Remobilization of arsenic from buried wastes at an industrial site: mineralogical and geochemical control 1031

A. G. BORREGO, P. BERNARD and C. G. BLANCO: Aliphatic hydrocarbons in the bitumens of the Puertollano oil shales 1049

F. ELBAZ-POULICHET and C. DUPUY: Behaviour of rare earth elements at the freshwater–seawater interface of two acid mine rivers: the Tinto and Odiel (Andalucia, Spain) 1063

J. D. EUSDEN, T. T. EIGHMY, K. HOCKERT, E. HOLLAND and K. MARSELLA: Petrogenesis of municipal solid waste combustion bottom ash 1073

C. C. WHITE, R. SMART, M. STUTTER, M. S. CRESSER, M. F. BILLETT, E. A. ELIAS, C. SOULSBY, S. LANGAN, A. C. EDWARDS, A. WADE, R. FERRIER, C. NEAL, H. JARVIE and R. OWEN: A novel index of susceptibility of rivers and their catchments to acidification in regions subject to a maritime influence 1093

Erratum 1101